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Biology 9 Review

Multiple Choice: Circle the best answer. **1 mark** each.

1) To use a microscope properly:

- a) Use the coarse adjustment to focus with the 10x objective lens
- c) Carry the microscope by the base

- b) Only move the specimen slide while using the 4x objective lens
- d) Unplug the microscope by pulling on the cord, the head of the cord is dangerous

2) Which of the following is a DNA base pair?

- a) Cytosine and Thymine
- c) Guanine and Uracil

- b) Adenine and Guanine
- d) Adenine and Thymine

3) Mitosis:

- a) Produces two different diploid cells
- c) Produces two identical diploid cells

- b) Produces 4 different haploid cells
- d) Produces 4 identical haploid cells

4) Meiosis (whole process):

- a) Produces two different diploid cells
- c) Produces two identical diploid cells

- b) Produces 4 different haploid cells
- d) Produces 4 identical haploid cells

5) The gamete cells can have incorrect chromosome numbers if

- a) the cell duplicated too many chromosomes
- c) the cell's nucleus did not disappear during prophase 2

- b) the cell did not separate the chromosomes properly during anaphase 1
- d) the cell did not divide properly during cytokinesis

6) The Centriole

- a) Keeps the cell centered
- c) Creates the Mitotic Spindle for cell division

- b) Creates Ribosomes
- d) Centers the nucleus when performing mitosis

7) Chromosome Cross Over is:

- a) when two chromosomes exchange DNA during Meiosis
- c) when two chromosomes form an X-shape

- b) when chromosomes cross over to the other side of the cell
- d) when two chromosomes exchange DNA during Mitosis

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8) Which of the following is **not** done when a fire in the lab starts when using a Bunsen Burner?

- a) The fire extinguisher is used on large fires
- b) The emergency gas shut off is activated
- c) The fire alarm is pulled
- d) The fire blanket is used on anyone on fire

9) Which of the following is **true**?

- a) DNA can never be removed from the nucleus
- b) Humans have a total of 23 chromosomes in body cells
- c) DNA has a double helix shape
- d) DNA is contained in the nucleolus

10) A specialized organelle that sorts and packages proteins for transport is called

- a) The nucleus
- b) The centriole
- c) The nucleolus
- d) The golgi body

11) Which of these organelles are only found only in plant cells?

- a) Vacuole
- b) Smooth ER
- c) Cell Wall
- d) Cell Membrane

12) Independent assortment

- a) Is when the chromosomes line up in any order during metaphase 1
- b) Is when the chromosomes line up in any order during metaphase 2
- c) is when the chromosomes exchange DNA during prophase 1
- d) is when the chromosomes exchange DNA during prophase 2

13) Which of the following is a nucleotide **not** made of?

- a) Deoxyribose
- b) Phosphate
- c) Nucleic bases
- d) Ethanol

14) A diploid organism has 22 pairs of chromosomes. It creates haploid gamete cells. How many chromosomes does each gamete have?

- a) 22
- b) 46
- c) 11
- d) 44

15) Which of the following affects the **mating** phase of some animals?

- a) Internal fertilization
- b) The local geography and environment
- c) Cross-pollination
- d) Embryonic development

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16) When smelling a chemical

- a) if it is safe, chemicals can be directly inhaled in the lab
- c) the scent is wafted from the bottle from a distance towards you

- b) The bottle is pointed away from you and smelled in the air around the area
- d) A small amount can be added to a test tube to be smelled

17) A hydra creates a smaller version of itself that grows off of its side until it leaves and becomes a smaller, identical organism. This is an example of:

- a) Binary Fission
- c) Fragmentation
- b) Sexual Reproduction
- d) Budding

18) The mitochondria

- a) provide energy to the cell
- c) provide sugar for the cell
- b) use photosynthesis
- d) all of the above

19) A daughter cell

- a) Is a cell that always produces a female embryo
- c) Is the name of a cell resulting from the processes of mitosis or meiosis
- b) Is a cell that is identical to a parent cell
- d) Always has a Y-chromosome

20) Cross Over Events

- a) are when chromosomes move to either side of the cell
- c) are during meiosis when chromosomes exchange pieces of DNA before separating
- b) are during mitosis when chromosomes exchange pieces of DNA before separating
- d) are when chromosomes are duplicated by crossing over one another

21) Which of the following is part of cell theory?

- a) Organisms are made up of more than one cell
- c) DNA is the basic unit of a cell
- b) Cells come from previously existing cells
- d) Cells see cells selling cellulose to cells

22) To see a slide at 40x magnification under a microscope, use the

- a) 4x objective lens
- c) 40x objective lens
- b) 10x objective lens
- d) 400x objective lens

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Matching

Letter	Term	Description
	1) Binary Fission	a) Cells that continue to divide forever using mitosis due to mutations
	2) Gamete Cells	b) A growth forms off the side of an organism and leaves the parent to form an identical organism
	3) Spores	c) Chromosomes with the same types of genes and similar size, but possibly with different versions of the genes
	4) Zygote	d) A molecule that is coded by a gene and can perform various functions in a cell
	5) Fragmentation	e) An organism is damaged and cut into pieces, which reproduce asexually and form new, identical organisms
	6) Embryo	f) A new cell/organism that is identical to the original cell/organism
	7) Stamen	g) A stage in sexual reproduction where the fertilized cell has further developed using mitosis and is beginning to form organs and tissue
	8) Protein	h) A plant capsule from a plant's stigma that contains a zygote and a food storage.
	9) Cancer	i) Haploid cells that are released by fungi to form new, identical fungi
	10) Budding	j) An egg cell that has been fertilized by a sperm cell
	11) Vegetative Reproduction	k) The male reproductive organ of a plant. Creates pollen.
	12) Clone	l) Bacteria use this to divide into two identical cells without mitosis
	13) Homologous Chromosome Pair	m) Plant asexual reproduction method that uses special structures like bulbs and tubers
	14) Sister Chromatids	n) An organism which requires two other species to undergo sexual reproduction
	15) Seed	o) Chromosomes that are exactly identical, made by duplication, and attached by a centromere
	16) Hybrid Species	p) Haploid cells that are produced by Meiosis

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Short Answer Section:

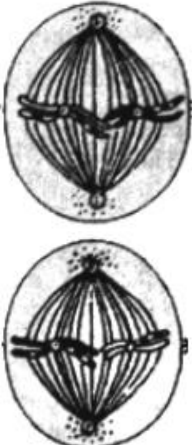

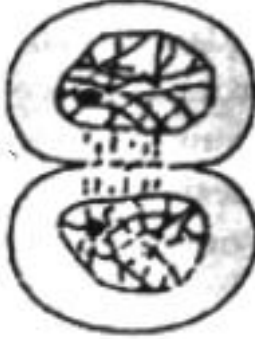
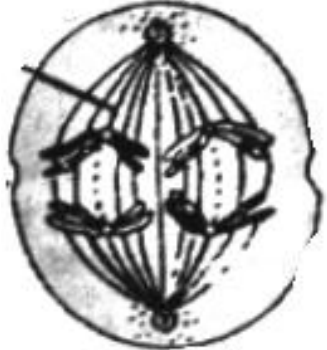


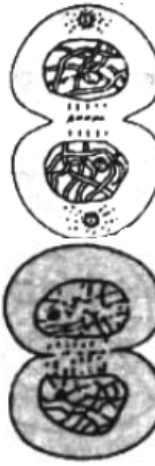

1) The stage that comes before meiosis and mitosis is called _____.
During this stage:

- the cell will _____,
- and the DNA will _____



(1 mark)

2) Name each of the pictures of Meiosis. The diploid number is 4 and the haploid number is 2. **Place a star** on the stage where the **cross over event** can happen. **Place a triangle** on the stage where **independent assortment** occurs. (5 marks)

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3) What are the pros and cons of internal and external fertilization? (2 marks)

	Internal Fertilization	External Fertilization
Pros		
Cons		

4) Describe three ways mitosis and meiosis differ. (3 marks)

5) What is a gene? How does a gene affect an organism/ a cell? (1 mark)

6) a) Describe In Vitro Fertilization. (1 mark)

b) Are there any ethical problems with In vitro fertilization? Describe why it is or is not a controversial topic. (1 mark)

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7) a) Describe an advantage to sexual reproduction. (1 mark)

b) Describe an advantage of asexual reproduction. (1 mark)

8) a) Describe pollination in flowers. Use the words stigma and stamen. (1 mark)

b) Why do pollinators help the plants? (1 mark)

c) Describe an advantage and a disadvantage to pollination. (1 mark)

9) What three things give Meiosis the ability to create haploid cells that differ? (1 mark).

b) When is a cell "haploid" during meiosis? (1 mark)

10) What do you do if there is a spill in the lab? (2 marks)